

FIGURE 1

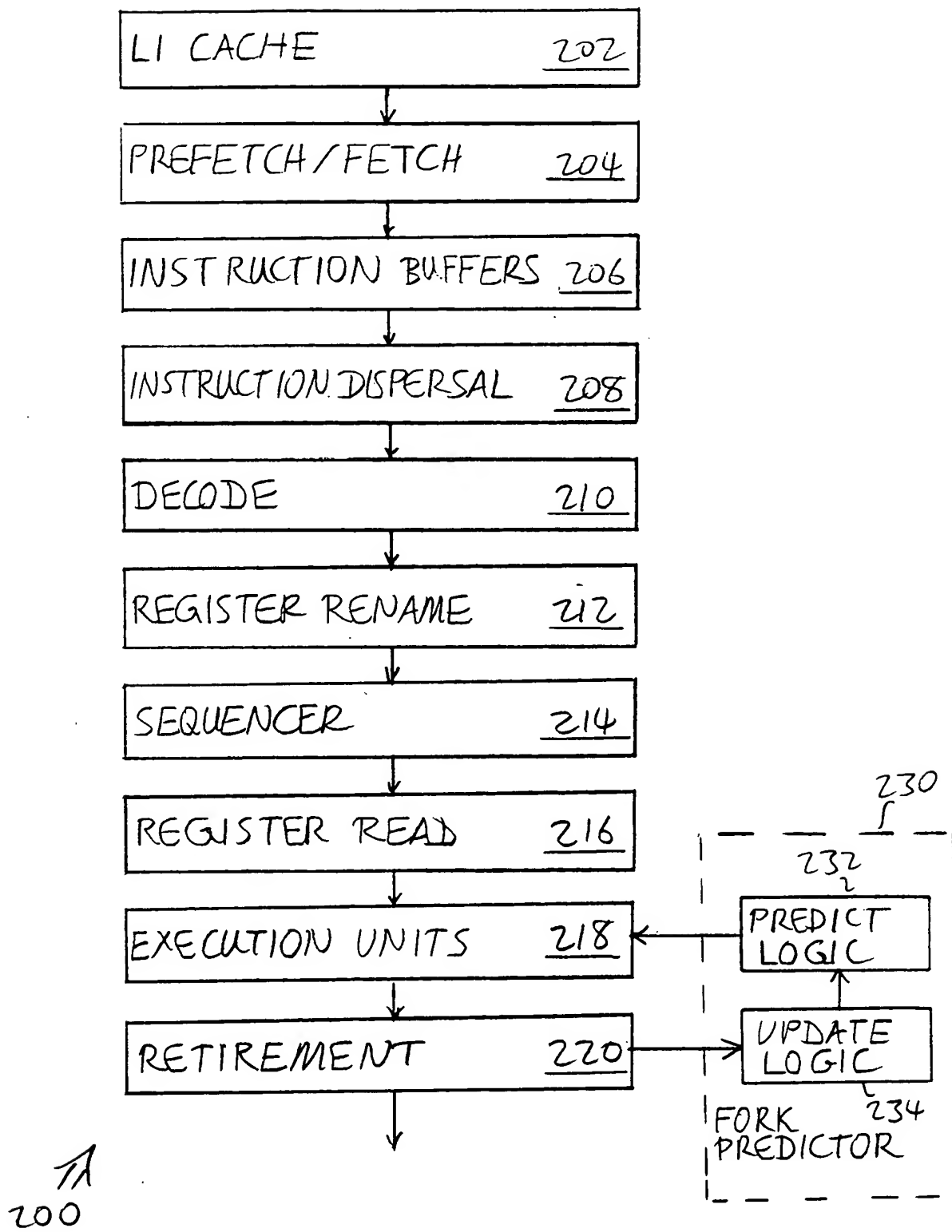


FIGURE 2

PROCESSOR TYPE	SPECULATION PREDICTED TO BE SUCCESSFUL OR DESIRABLE	FORK?	JOIN?	SPECULATION POTENTIALLY SUCCESSFUL OR DESIRABLE	UPDATE PREDICTOR?
NON-SUPPORTING	N/A	NO OPERATION	NO OPERATION	N/A	NO OPERATION
SUPPORTING	NO	NO OPERATION	NO OPERATION	COMPUTE VALUE	UPDATE
SUPPORTING	YES	FORK	JOIN	COMPUTE VALUE	UPDATE

FIGURE 3

```

main_routine()
{
    initialize_main_compute();

    fork_point:

        fork_executed                = fork(speculative_routine, join_point);

        main_pre_join_point_compute();

    join_point:

        if (fork_executed) join_nonspeculative(speculative_routine, join_point);

    post_speculation_point:

        speculation_status = determine_speculation_status();

        speculative_results_valid      = (fork_executed && successful(speculation_status));
        speculative_computation_desirable = desirable(speculation_status);

        if (speculative_results_valid) consume_speculative_results();
        else                          compute_nonspeculative_results();

        update(fork_point, speculative_computation_desirable);

        complete_main_compute();
    }

    speculative_routine(join_point)
    {
        initialize_speculative_compute();
        compute_speculative_results();
        join_speculative(speculative_routine, join_point);
    }
}

```

**FIGURE 4A**

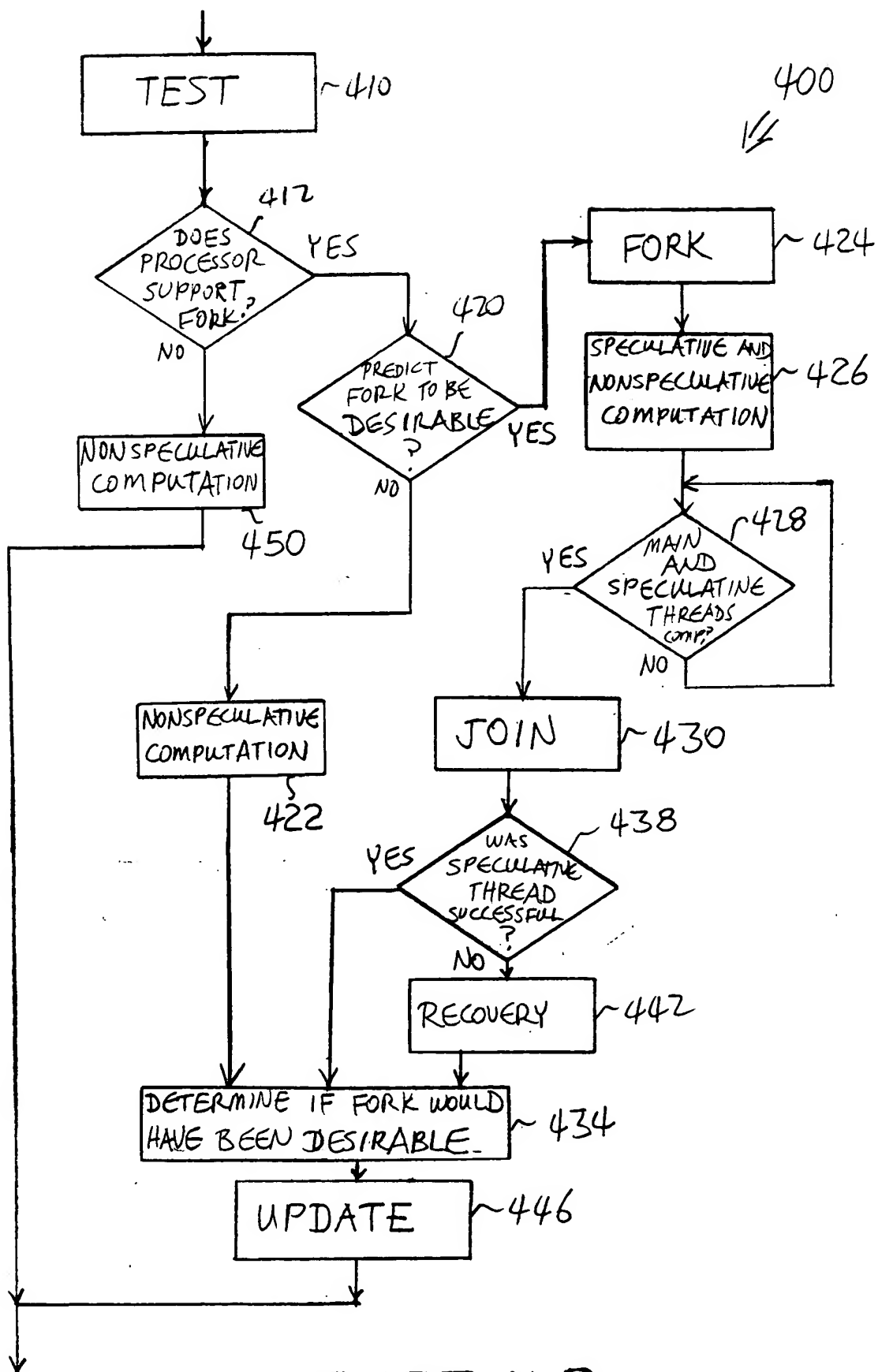


FIGURE 4 B

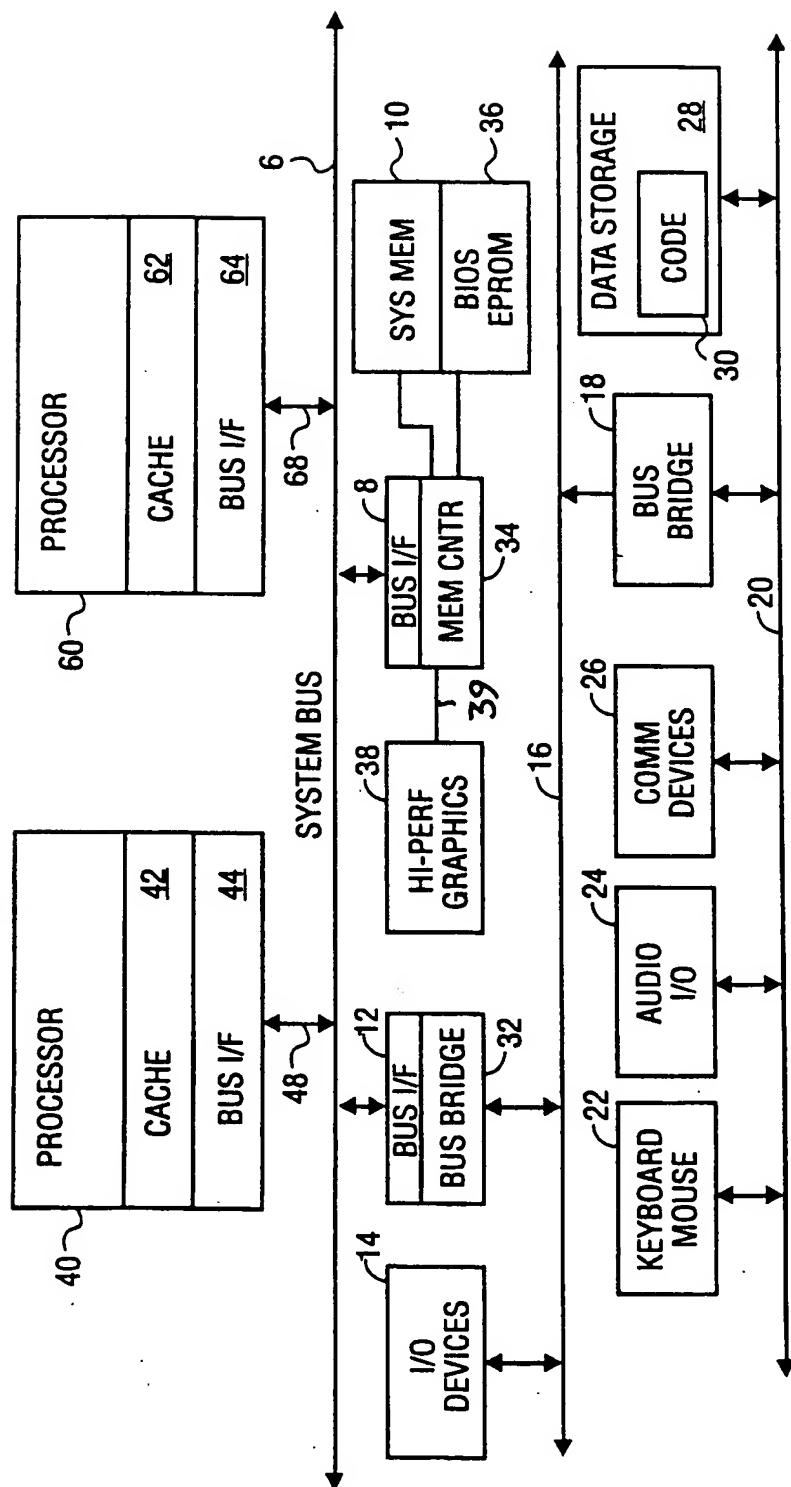


FIG. 5A

